

What is claimed is:

1. A method for controlling a fuel cell system, in which a hydrogen-containing reformer gas is produced in a reformer unit by selectively separating the reformer gas from a gas mixture using a diaphragm module having a diaphragm, the method comprising:

during normal operation of the fuel cell system:

keeping the gas mixture at a higher pressure than the separated reformer gas;

supplying the reformer gas to an anode side of a fuel cell module; and

supplying an oxidation agent to a cathode side of the fuel cell module, the fluids on the anode side and the cathode side of the fuel cell module being separated by a separation diaphragm unit; and

during abnormal operation including a bursting of the diaphragm:

holding a pressure differential between a side of the reformer unit facing the anode side and the cathode side of the fuel cell module below a predefined value.

2. The method as recited in claim 1, wherein the differential pressure is essentially held below 500 mbar.

3. A fuel cell system, comprising:

a reformer unit for producing a hydrogen-containing reformer gas using a diaphragm module having a diaphragm, the diaphragm separating a high-pressure area of the fuel system from a low-pressure area of the fuel cell system, the high-pressure area including a first fluid circulation volume and the low-pressure area including a second fluid circulation volume, the first volume being substantially smaller than the second volume; and

a fuel cell module having at least one fuel cell, the fuel cell having an anode side and a cathode side separated from each other by a separation diaphragm unit, the anode side being connected to a side of the diaphragm module in the low-pressure area, and the cathode side being connected to a device for supplying an oxidation agent.

4. The fuel cell system wherein a third volume for the circulation of fluids in the fuel cell module is at least six times that of the first volume.
5. A fuel cell system, comprising:
 - a reformer unit for producing a hydrogen-containing reformer gas using a diaphragm module having a diaphragm separating a high-pressure area of the diaphragm module from a low-pressure area of the diaphragm module;
 - a fuel cell module including at least one fuel cell having an anode side and a cathode side separated from one another by a separation diaphragm unit, the anode side being connected to the low-pressure area of the diaphragm module, and the cathode side being connected to a device for supplying an oxidation agent; and
 - a pressure relief valve disposed between the low-pressure area of the diaphragm module and the anode side of the at least one fuel cell.
6. The fuel cell system as recited in claim 5, further comprising a pressure sensor controlling the pressure relief valve.
7. The fuel cell system as recited in claim 5, further comprising a sensor controlling the pressure relief valve, a signal of the sensor representing at least one of a carbon monoxide content and a carbon dioxide content on a low-pressure side of the diaphragm.
8. The fuel cell system as recited in claim 5, further comprising a flow resistance connection disposed between the low-pressure area of the diaphragm module and the anode side of the at least one fuel cell.
9. The fuel cell system as recited in claim 5, further comprising a shut-off valve disposed between the low-pressure area of the diaphragm module and the anode side of the at least one fuel cell, the shut-off valve configured to shut off in the event of rupture of the diaphragm.
10. A fuel cell system comprising:

a reformer unit for producing a hydrogen-containing reformer gas using a diaphragm module having a diaphragm separating a high-pressure area from a low-pressure area;

a fuel cell module including at least one fuel cell having an anode side and a cathode side separated from one another by a separation diaphragm unit, the anode side being connected to the low-pressure area of the diaphragm module, and the cathode side being connected to a device for supplying an oxidation agent; and

a bursting disk disposed a connection between the low-pressure area of the diaphragm module and the anode side of the at least one fuel cell.